

Introduction

The tables presented here are a compilation of data pertinent to near-backscattering, spherical analyzers for Resonant Inelastic X-ray Scattering (RIXS) measurements. They contain viable crystal reflections for absorption edge- and emission line energies in the hard x-ray range, together with reflection strength- and resolution information. They assume a sample-analyzer-detector geometry based on a Rowland circle with a position-sensitive (strip-) detector as described under [Detector-Analyzer Geometry]. Crystal materials included are **Si**, **Ge**, **Lithium Niobate (LiNbO₃)**, **Sapphire (Al₂O₃)** and **Quartz (SiO₂)**.

Structure factors involved in generating the reflection data were calculated for room temperature (RT=293.15 K), using Debye-Waller factors e^{-2M} with

$$e^{-M} = \sqrt{e^{-2M}} = e^{-B_{RT} \left(\frac{\sin \Theta}{\lambda} \right)^2} \quad (0)$$

where $\sin \Theta / \lambda$ is proportional to the momentum transfer, and mean-square atomic vibrational amplitudes B_{RT} were derived from x-ray diffraction measurements. In particular, the following vibrational amplitudes B_{RT} and associated Debye temperatures Θ_D were used:

	B_{RT}	Θ_D
	[Å ²]	[K]
Si	0.4632 ³⁾	530.82
Ge	0.5661 ⁴⁾	290.03
LiNbO ₃	Li: 0.5264 ⁵⁾ Nb: 0.4174 O: 0.5738	1118.44 298.90 643.27
Al ₂ O ₃	Al: 0.1921 ⁶⁾ O: 0.2271	897.40 1122.51
SiO ₂	Si: 0.4874 ⁷⁾ O: 0.9949	516.38 476.16

References

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